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ABSTRACT

This guide is intended to help educators understand, develop, and implement workplace simulations for students in grades K-12. The introduction examines the role of simulation in integrated school-to-work programs. Discussed first are the following aspects of the workplace simulations model on which the simulations are based: educational premises (learning standards and Secretary's Commission on Achieving Necessary Skills, contextualized instruction, constructivist theory); principal characteristics (active student participation, essential business involvement, array of work experiences); and types of simulations (multi-district simulations and simulations confined to a district, school, or classroom). The next three sections explain the following: advantages of workplace simulations for schools, students, and teachers; considerations in designing workplace simulations (key components, action steps, appropriate schedules); and strategies for involving others in workplace simulations. Concluding the guide are plans for 23 sample simulations (14 for elementary schools, 4 for middle schools, and 5 for high schools). Each plan contains the following: grade level, learning standards addressed, related career major, description of the simulation, instructional goals, and names of the simulation's developer and a contact person. Appended are the following: simulation planning guide; standards checklists; and simulation layouts. The bibliography contains 33 references. (MN)

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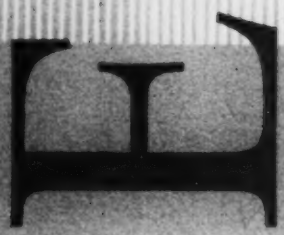

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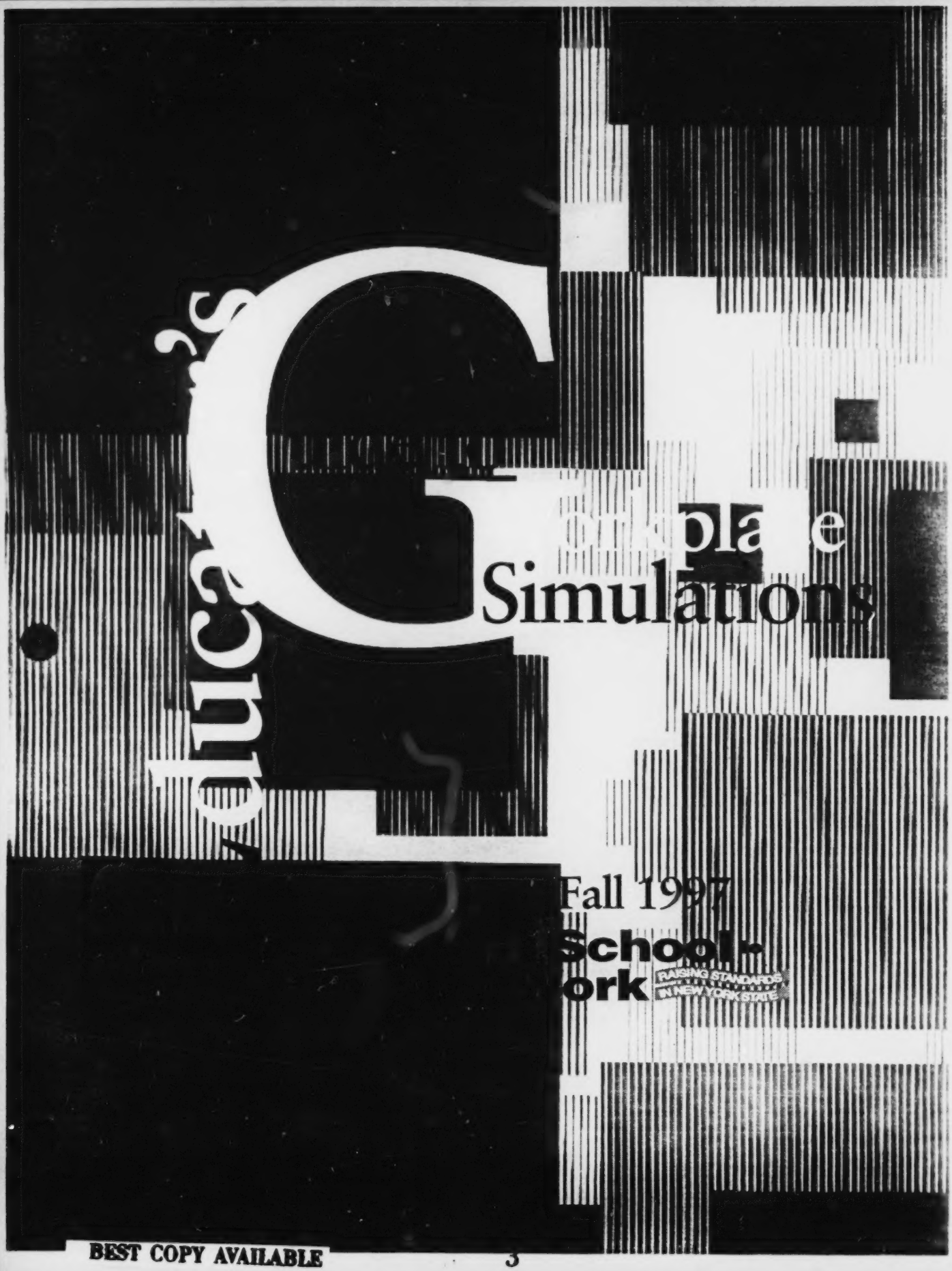

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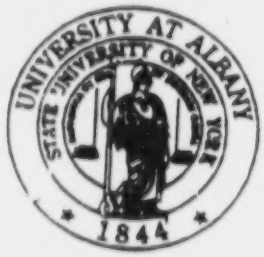

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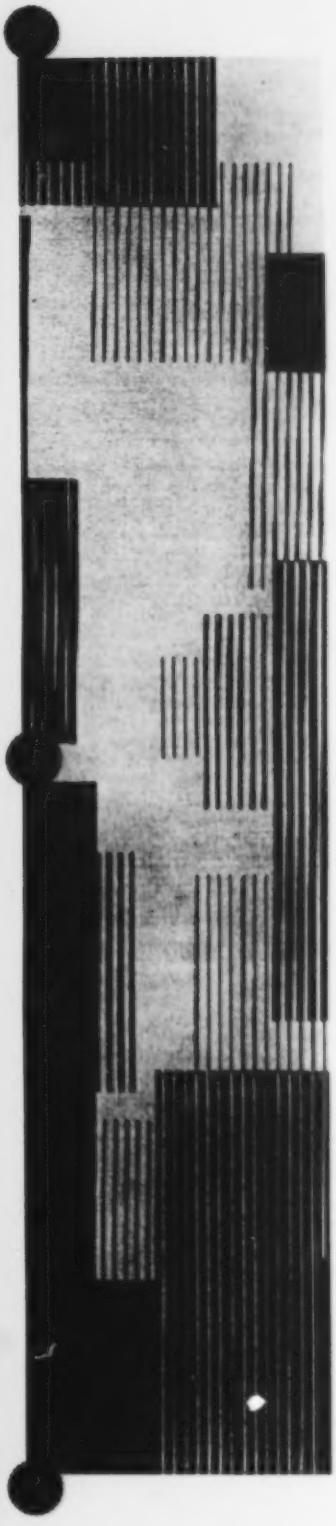
About This Guide

The purpose of this guide is to help educators understand, develop, and implement workplace simulations. Information presented in this guide is based largely on the research and work of Dr. Annette Miele Saturnelli, Director of Science and School-to-Work K-12 for the Newburgh Enlarged City School District.

Organized by major section, the guide is structured in a "user-friendly" format to facilitate the use, duplication, adaptation, and addition of materials. Teachers and others who use this guide are encouraged to use the lines provided on many of the pages to record their own information and ideas. The guide offers practical suggestions and sample simulations that can be applied in the classroom to provide students with an effective work-like learning experience.

Please customize this guide. Make it your own by changing, improving , and adding to it.



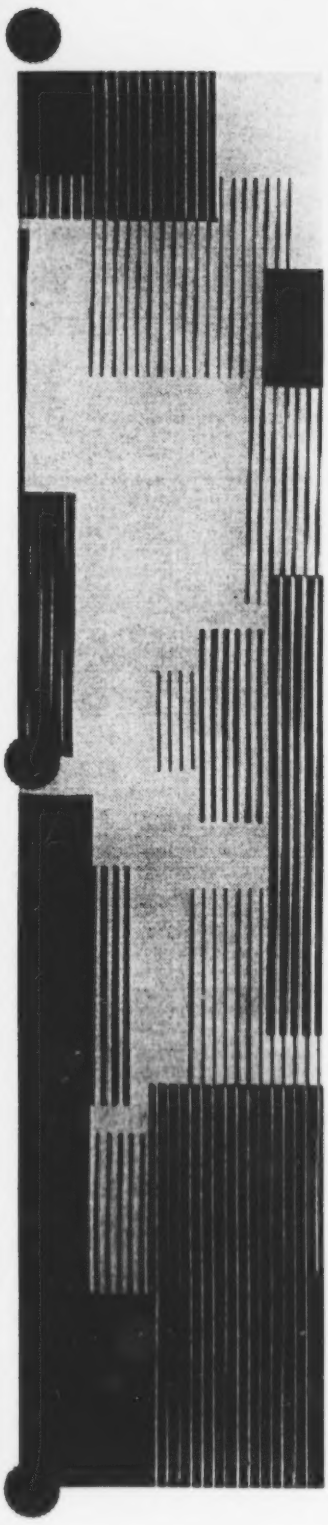
Introduction

The School-to-Work Opportunities Act of 1994 calls for a systemic change in education ensuring universally high academic and work standards and preparing ***all*** youth for responsible citizenship, further learning, and productive employment. Three components -- school-based learning, work-based learning, and connecting activities -- have been identified as essential to the new system.

The workplace simulations model provides the opportunity for school districts to fuse school-based learning, work-based learning, and connecting activities into one core instructional strategy. This approach serves to provide ***every*** student, from kindergarten through age 24, with continual authentic and career-oriented workplace experiences within school facilities. It also can benefit out-of-school youth through other settings and programs. Although presented in school-based terms, the concepts, process, and sample simulations may be transferred or adapted to any educational setting, *i.e.*, Division for Youth, adult education, and postsecondary education facilities.

In this integrated model, work-based learning occurs in alternative school-based learning environments mirroring high-performance businesses and industries. The model benefits large districts where it is difficult to arrange individual worksite experiences for all students, and rural districts with a limited number and diversity of employers and transportation challenges.

While educators realize that workplace simulations provide excellent learning opportunities, they also understand that simulations cannot completely replicate all facets of the workplace. Some students may perform activities very well in a structured, supportive environment, but may have problems if placed within the actual work culture. However, even this point supports the important role simulations can play.



The Model

The workplace simulations model provides work-like learning environments in which students acquire academic skills simultaneously with workplace skills and competencies -- ***within a school district's own buildings, grounds, and classrooms.***

In the workplace simulations model:

- Students are ***active*** participants, who carry out specific tasks following well-defined instructions.
- Students are ***actively engaged*** in team activities that are described as:
  - authentic,
  - problem-based, and
  - work-related.
- Students are ***involved*** in tasks which require them to:
  - gather,
  - organize, and
  - interpret information.
- Student tasks affect three important educational variables:
  - learning environment (*where* learning occurs)
  - educational content (*what* is learned)
  - instructional treatment (*how* it is taught and learned)

The workplace simulations model acknowledges that a central purpose of schooling is to prepare students for the world of work. The model conveys to students the crucial role work plays in the lives of adults and for society in general. The workplace simulations model is based upon the educational philosophy of John Dewey and is supported by the latest educational research on teaching, learning, and assessment.

"Learning through occupations, not for occupations."
- John Dewey

Educational Premises

Workplace simulations provide opportunities for cooperative learning, extended-time schedules, and developing problem-solving and higher order thinking skills. They offer an exceptional approach for addressing the goals promoted by the New York State Learning Standards, SCANS Report, contextualized learning, and constructivist theory.

1. Learning Standards -- The New York State Learning Standards define what students should know and be able to do in seven academic areas. *(See Appendix B).* The School-to-Work initiative facilitated the development of the Career Development and Occupational Studies (CDOS) Learning Standards which require that ***all*** students be offered opportunities for career exploration, awareness, and planning; applied academic learning; and the development of universal foundation skills and workplace competencies. These standards are intended to be infused at every grade level in all academic areas and to be supportive of "authentic assessment."

2. SCANS Report -- The *Secretary's Commission on Achieving Necessary Skills (SCANS) Report* suggests three principles from cognitive science to guide real contextual learning in all schools:

- Students do not need to learn basic skills before they learn problem-solving skills. The two go together. They are not sequential but are mutually reinforcing.
- Learning should be oriented toward encouraging students to recognize and solve problems and away from mere memorization of information.
- Real know-how foundation skills and competencies cannot be taught in the abstract; students need practice in application of these skills.

SCANS research points out that, when skills are taught in the context of the SCANS competencies, students learn the skills more rapidly and are more likely to apply them in out-of-school situations. In addition, personal characteristics, such as self-esteem and responsibility, are best developed in teamwork efforts.

3. **Contextualized Instruction** -- This refers to teaching that uses concrete objects and real life problems to help students understand what they are learning, why they are learning, and how it can applied. Such instruction fosters experiential, interactive, and meaningful learning through "embedded curriculum."

4. **Constructivist Theory** -- Constructivist theory is based upon the belief that:

Learning relies upon knowledge construction more than on knowledge transfer.

Learners must be actively engaged in constructing meaning with activities focused around a common task. Telling students what a teacher 'knows' via the traditional and most commonly used lecture method (especially at the secondary level) does not mean that students acquire those concepts and skills.

Other references on skills and competencies:

_____

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NOTE: Teachers and others who use this guide are encouraged to use the lines provided above (and on many other pages) to record their own information and ideas.

Principal Characteristics

Three principal characteristics serve to describe the model:

1. **Active Student Participation**

- Students construct and discover knowledge by learning in context.

- Students learn to rely on team member contributions to arrive at solutions to the real life problems. Just as in the world of work, there may not be enough time to complete all tasks required to solve a problem and the best solution may not be arrived at by only one person working individually. Student abilities and capacities differ. Whereas one student may not excel at a given task, the group/team can achieve as a whole.

2. **Essential Business Involvement**

- Business and industry must be involved in the design of the simulation, including the design of its physical environments and curriculum, to ensure authenticity. Students use new technologies present in today's high performance work organizations.

- Workplace simulations try to mirror today's workplace in wide range of industries.

- Students are exposed to all aspects of the industry being simulated to understand the relationship of each department or task to the entire system and the goals of the company or business. The various aspects of the industry will typically include marketing, sales, human resources, finance/accounting, quality control/monitoring, and production or direct service.

3. **Array of Work Experiences**

- Students experience developmentally appropriate workplace simulations with increasing levels of complexity throughout their school careers.

- Students are exposed to different types of industries through participation in a variety of simulations.

Types of Simulations

There are basically four types of workplace simulations. They may be characterized and categorized by the number of children, number of school buildings, and number of school districts using them:

1. **Multi-District Simulations** --- These are usually expensive to construct and involve equipment not easily acquired. One facility is shared by many school districts in a collaborative manner, or the simulation can be transported to other districts.

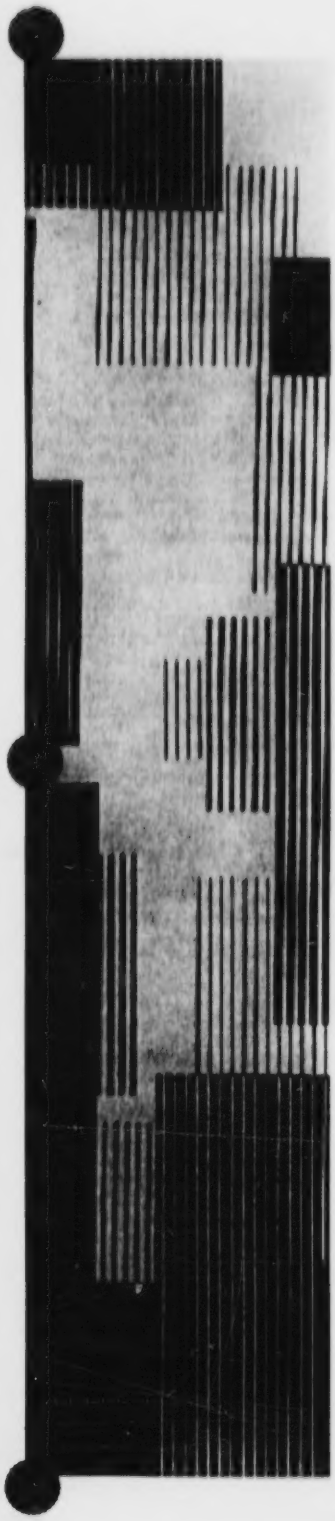
2. **Within-a-District Simulations** -- These are inexpensive enough for a district to create on its own. Students from all buildings come to the one building for the experience, or the simulation can be transported to other schools.

3. **Within-a-School Simulations** --- These are more practical to set up, usually one simulation for all classes of that grade level in a building to share.

4. **Within-a-Classroom Simulations** -- This type exists when the school-to-work/workplace simulations model is fully assimilated and institutionalized. Teachers implement these workplace simulations as their lesson plans. They are inexpensive, require few supplies and materials, and take minimal time to set up and take down.

Other variations of workplace simulations:

The Advantages



The workplace simulations model can yield positive outcomes through the types of learning experiences it provides. Workplace simulations offer several advantages for schools, students, and teachers.

Advantages for Schools

Several worthwhile connections are stimulated or strengthened through workplace simulations. The model:

1. **Connects Students to Learning --** Simulations build on the natural role playing of youth. From the earliest ages, they role play. They play hospital (doctor/nurse), school (teacher/student), and house (mommy/daddy) roles. Their imaginations are wonderful! The workplace simulation model builds upon this natural activity of role playing and emulating adults in real-world situations.

2. **Connects School-Based to Work-Based Learning --** The primary objective of workplace simulations is to create, within learning environments, working models that move away from separate constructs of school-based, work-based, and connecting activities. This is accomplished by totally integrating authentic work-like learning experiences simultaneously with school-based learning experiences. Multiple, alternative learning environments and opportunities are created reflecting today's diverse workplaces.

3. **Connects Classroom to Workplace** -- The model ensures that ***all*** students, realistically, can have the experiences required by the School-to-Work Opportunities Act and the New York State Learning Standards. Workplace simulations afford greater opportunities for teachers to make connections directly to the curriculum. Simulations can be implemented conveniently, allowing large numbers of students to experience workplace learning without the additional challenges often associated with actually moving students out into business and industry (*i.e.*, individualized transportation and insurance).

4. **Connects Teachers to Parents** -- Workplace simulations offer excellent opportunities to actively engage parents in the career planning process. *(See Involving Others.)*

Advantages for Students

1. Prepares *ALL* students for the world of work -- Workplace simulations can be designed and constructed for all learners of a specified educational level. Since all students are future workers, simulations are applicable to, and hold promise for, all types of students, including:

- *Students Involved in Work Experience.* Simulations are not intended to replace existing work experience programs. However, students completing a sequence of workplace simulations find they are better able to make decisions about their high school courses and make more knowledgeable choices about and gain more from their work experience.

- *College-Bound Students.* Prior to the School-to-Work Opportunities Act, little career exposure was provided for college-bound students. Workplace Simulations enable college-bound students to access information about careers and the workplace. Armed with a better understanding of what is expected of them as workers and the types of occupations available to them, college-bound students make informed decisions as they select colleges and majors. The result is a more successful college experience.

- *Students with Disabilities.* Community agencies specializing in services for persons with disabilities can offer expertise in ensuring physical, perceptual, and cognitive/emotional/psychological, physical, and perceptual accommodations. They can also assist with job restructuring accommodations.

- *Limited English Proficient Students.* Student materials for workplace simulations should be available in all languages of the school's student population.

- *At-Risk Youth.* Workplace Simulations can serve as an alternative learning environment for students who have difficulty functioning in a traditional classroom program. Students with behavioral difficulties generally exhibit good behavior at workplace simulations because they are actively engaged in new and interesting tasks in an environment more conducive to learning.

- *Out-of-School Youth.* Working positions as assistants to the facilitators of the workplace simulations sites can be used as an intermediary step for out-of-school youth. They improve their own work ethic and gain skills which can be documented and viewed as work experience when applying for employment.

- *Gifted and Talented Youth.* Workplace simulations extend additional learning opportunities for gifted and talented youth. These youth can apply abstract concepts and test creative approaches to workplace situations.

2. **Creates an Appetite for Learning** -- Authentic role-playing experiences provide and appetite for learning. Workplace simulations:

- enable students to project themselves into the future and imagine themselves in various roles and careers.

- offer students the opportunity to participate in all major aspects of the simulated workplace, thus eliminating gender role stereotyping and bias.

- change student perceptions of school from boring and purposeless to engaging and meaningful places for learning.

- answer the question: "Why do I need to learn this?"

3. **Improves Student Performance** -- Regular student participation in workplace simulations can have a positive affect upon academic achievement. Through simulations, students have the opportunity to:

- raise their cognitive level,
- increase their probability of staying in school,
- see the relationship between school and work,
- become aware of the value and benefits of educational achievement,
- acquire goal orientation needed for success in school, work, and life,
- demonstrate responsible, ethical behavior and good work habits,
- develop and internalize job-keeping skills, and
- realize that work is essential to the needs and functions of our economy and society.

4. **Enhances Student Skills** -- While participating in workplace simulations, students can demonstrate several educational and workplace competencies, as well as develop their personal skills. *(See Appendix B for the New York State Learning Standards and SCANS Skills.)* Students can enhance their ability to:

a. Classroom Skills

- listen carefully,
- speak clearly,
- write clearly ,
- write legibly,
- read for details,
- write in standard English,
- think critically,
- do basic mathematical calculations,
- estimate quantities, and
- use fractions, decimals, formulas, numerical values from charts/tables.

b. Workplace Skills

- follow directions,
- ask questions,
- fill out a job application,
- prepare a resume,
- interview,
- compose a standard business letter,
- know when and how to ask for help and/or clarification of instructions,
- apply problem-solving skills,
- complete forms accurately,
- manage time and materials to solve a given problem,
- access and process information acquired from various sources,
- exhibit professional behavior, and
- learn about new career options and the skills required for those careers.

c. Personal Qualities

- interact positively with others,
- participate and work cooperatively as a team member,
- exhibit dependability, promptness, good attendance,
- demonstrate good work habits such as neatness in appearance, appropriate dress, being prepared, completing assignments and tasks in a team, showing a willingness to learn,
- admit mistakes, correct them, learn from them,
- take responsibilities for one's own actions,
- deal responsibly with money
- accept constructive criticism,
- give (not take) credit for someone else's work,
- respect the rights of others, keep confidences, tell the truth, and
- respect "company" property.

Other possible advantages for students:

Advantages for Teachers

Workplace simulations can have a profound impact upon teaching methods. Through simulations, teachers have the opportunity to create learning environments and experiences outside the classroom for students to learn concepts and skills.

1. Offers New Roles to Teachers -- Contextualized learning requires different roles for teachers as well as students. Roles are "authentic" (reflecting those found in the workplace). The roles mimic a master-apprentice relationship, where teachers act more as guide, facilitator, and coach.

In the workplace simulations model, the teacher plays the role of:

- workplace mentor,
- expert, or
- model practitioner.

The mode of instruction automatically and naturally changes. There is little lecturing, but more:

- modeling,
- one-on-one tutoring,
- guiding,
- facilitating,
- demonstration of thinking skills, and
- hands-on, performance skills.

The role of the teacher/facilitator and the classroom teacher changes from a dispenser of information to a facilitator of learning.

Students have an opportunity to build on their own knowledge as a result of their experiences. Knowledge is not transmitted from the teacher to the student.

The teacher's new role is to provide the appropriate learning environment, with hands-on, mind-engaging activities. The students can construct their own knowledge, in the context of a workplace, and use the new concepts and skills they have learned.

2. **Encourages the Use of New Instructional Techniques** -- Teachers can incorporate techniques to enrich instruction through workplace simulations model. A few examples include:

- Modeling: learner observation of expert practice.
- Coaching: guided and supported practice.
- Scaffolding: the teacher provides physical and emotional support by acknowledging a student's temporary discomfort or confusion and making suggestions for help.

3. **Provides Opportunities to Apply Different Strategies** -- Workplace simulations connect teachers to the world of work, allowing them to upgrade their own teaching skills by adapting workplace strategies. To be most effective, the workplace simulations model requires the following teaching strategies:

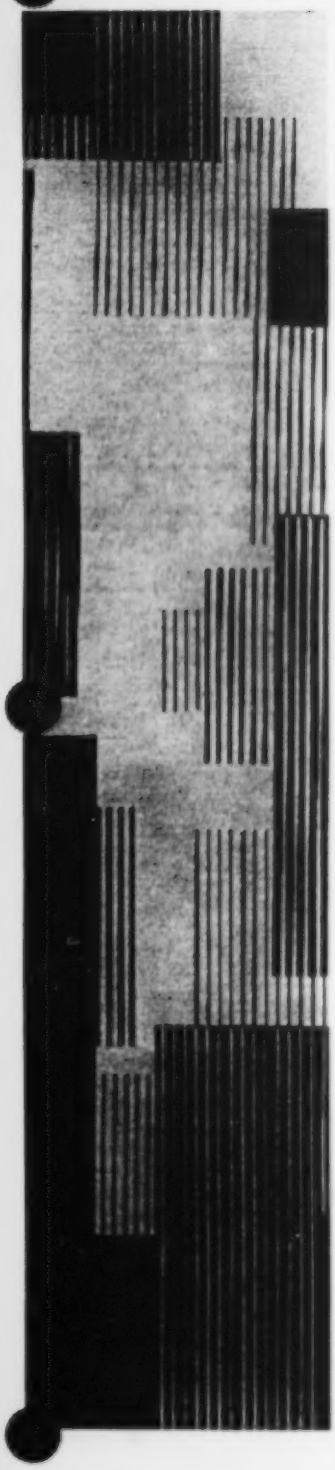
- Fading: the gradual removal of supports.
- Encouragement: the building and facilitating of natural support systems.
- Articulation: the use of any method helping students to articulate their knowledge, reasoning, problem-solving process. Articulation is used in the Workplace Simulation to make visible the otherwise invisible cognitive processes that occur during the learning process.
- Reflection: lets students compare their own problem-solving processes with those of an expert, or other student, ultimately with an internal cognitive model of excellence. Reflection activities help students focus their observations of expert problem-solving and gain control of their own problem-solving strategies.
- Exploration: includes any activity that pushes students into a mode of problem-solving on their own. Exploring is critical. Framing questions encourages learner autonomy in carrying out the problem-solving process and in formulating the problems to be solved.

- Sequencing: of tasks and the task environment is critical. Learning is staged in order of increasing complexity. Tasks and task environments are sequenced to require more and more skills and concepts necessary for expert performance.

- Increasing Diversity: of tasks and task environment. Tasks and task environments are constructed to require a wide variety of strategies/skills that are presented in a global context. Learning is staged so that the student develops an understanding of the total picture before attending to the details. Having a mental image of the overall activity helps learners make sense of the subactivity. The pre-visit activities that accompany each workplace simulation help to fulfill this requirement.

Other impacts and implications of workplace simulations upon teaching methods:

Designing Simulations



Designing workplace simulations involves many different types of activities, many of which must occur at the same time. This section presents practical wisdom, based on experience; it offers "how-to" information about necessary components, specific steps to take, and appropriate schedules.

Key Components

Workplace simulations need the following components:

- Simulated Worksite Environments: created by your "construction design team." Advice/input of the business or industry being replicated is essential in order to ensure authenticity.

- Student Guide: contains separate pre-visit and post-visit materials, including:

  - clear, well-described information about the industry and various jobs within it,
  - information about workplace simulation itself and general information about activities done at simulation site,
  - preparatory, exploratory activities with clearly written instructions in alternative formats,
  - map of workplace simulation site to guide students when they get to worksite,
  - information about careers/jobs of employees whose roles they will play,
  - glossary of terms for students to use in particular job/industry being simulated, and
  - a video related to the industry (if possible).

- Teacher Guide: (pre-visit and post-visit) contains:

  - the student guide,
  - background information for classroom teachers,
  - correlations to the NYS Learning Standards and SCAN Competencies,
  - sample parent information letters and permission slips, and
  - hands-on, pre-visit and post-visit activities.

- Student Journal/Log: for use at the simulated worksite and which can be included in the student's Career Portfolio. This is used to document student response to guiding questions and their reflection on the industry and activities.

- Problem-Centered Scenario: (or several scenarios if you have created multiple departments or workstations to portray various or all aspects of the industry) focused on the industry simulated, and that:

  - engages students in higher order thinking skills,
  - contains math, science, social studies, language arts, art, and/or music connections appropriate to the grade level targeted.

- Laminated Information and Directions: for students for each workstation or department at the workplace simulation site (in alternative formats and all languages necessary in the school district).

- Audiotapes: for students with special needs, such as visual disabilities, in order to initiate action by them at the various workstations.

- Special Props, Equipment, Tools: as necessary to mirror the real workplace site.

- Mini Staff Development Session: planned and scheduled for the teachers who will provide the pre-visit and post-visit instruction.

Other possible components and materials to develop:

Action Steps

It is difficult to delineate a specific order of steps to be followed in the creation of a workplace simulation. Many times it is necessary to go back and forth between steps and several activities may need to be accomplished concurrently. However, the following is a suggested order for developing workplace simulations:

1. **Choose a Simulation Idea**

- Brainstorm:

  - Create a mental inventory of jobs in your community or region.
  - Identify businesses and industries that are part of your students' world.
  - If you have worked anywhere else at all besides school, think about simulating that business or industry first because you will have more knowledge about it.

- Gather Information:

  - Ask students directly about careers in which they are interested.
  - Go through the Yellow Pages of the phone book.
  - Talk to students about industries they may have read about or heard about through television or the movies.
  - Talk to business and industry representatives.
  - Visit them, if possible.
  - Meet with your local Chamber of Commerce.
  - Go to the library to find books.
  - Surf the Internet about different business and industries.

- Possible Simulations:

2. **Conceptualize the Environment** -- You must begin conceptualizing the environment after you select the industry you plan to simulate. If the workplace simulation is to mirror a local business or industry:

The first step is to visit the worksite.

- Talk with the CEO/Owner to assign the people who can work with you on the simulation and to tour the facility.
- Tell them about your idea.
- Share some information about workplace simulations with the prospective business or industry partner.

(TIP: Photos of existing simulations are helpful to bring to the meeting.)

3. **Form a Team** -- After you have formed a basic idea of the simulation, curriculum must be written and the physical "set" must be designed and constructed.

- *Get building staff involved.* Seek curriculum writers who represent a variety of curriculum areas. Art and music teachers are usually excellent resources for set design. Special education teachers can help with access and accommodation issues.

- *Establish a meaningful role for administrators.* The 'buy-in' of the principal helps to bring the custodial staff on board as leaders in the construction phase at no cost. In turn, having the custodians involved in the construction provides a personal investment on their part when it comes to caring for the facility.

- *Involve parents on the team.* Provide an opportunity for them to use their talents and time in both planning and implementation.

- *Other team members:*

4. Tour Businesses -- The best people to visit any site to be simulated are curriculum writers and the design and construction team members. Involve those who will be creating the mental and physical aspects of the simulation in the tour of the facility. As you tour a site, use a worksheet or checklist. *(See Appendix A.)*

- Talk to as many different employees as possible.
- Ask them to tell you what they are doing.
- Draw diagrams of what you see.
- Consider what could be replicated on a small scale.
- Ask for suggestions on curriculum, supplies, and equipment.
- Ask what they might lend or donate, such as posters, displays, *etc.*

If the business or industry that you are going to simulate is not located nearby, phone calls can serve to provide information. Perhaps, the company will send you photos or videotapes of their facilities or suggest a website to visit.

4. Follow Through/Start Looking -- When you return to your building/school district, after touring a business, be sure to send a thank you note to the business. Identify the right building with the administrative and teacher support needed to make the simulation a reality. Bring enthusiastic and prepared students and parents to a board or PTA meeting with a presentation.

5. Decide on a Grade Level -- Before your curriculum writers begin to develop activities for the workstations, make a decision regarding the grade level for which you will develop your workplace simulation. You may need to start in an individual or small cluster of classrooms.

6. Identify Possible Space -- Locate the space that might be available to set up the simulated facility. *(See Appendix C.)*

- Consider issues of physical accessibility to comply with the American Disabilities Act.
- Invite representatives from business or industry to possible simulation sites to gain their perspectives.
- Together, sketch out and develop floor plans to create the physical environment for a workplace simulation.

7. Answer These Questions -- You will need to make an initial temporary decision regarding the extent of your workplace simulation by answering the following questions:

- Will it be for just one class or grade of students?
- For all classes of a grade level in one building?
- For all classes of one grade level throughout the entire district?
- For students in other school districts of your School-to-Work partnership?

8. Develop Simulation Curriculum *(See Constructing Key Components.)*

- Immediately involve a teacher or team of teachers in writing the curriculum for the simulation.

- Create student and teacher pre-visit packets. (Students should be actively engaged, not only with "hands-on" tasks but with "minds-on" activities as well. Pre-visit activities should develop the student's understanding of the industry being simulated, the importance of the industry to society, and the career opportunities offered.)

- Search catalogs for videos about the industry and the various jobs. (Videos are appropriate as one of the pre- or post-visit activities to help set the stage.)

- Consult professional organizations of industries for materials that can serve as resources.

9. Tie the Workplace Simulation to Educational Reform Initiatives -- Cross-reference the workplace simulation activities with the New York State Learning Standards. *(See Appendix B.)*

10. Identify Fiscal Needs -- As soon as the simulation concept, floor plans, and curriculum are developed sufficiently, establish a budget to include:

- construction materials,
- equipment needed to operate the simulation,
- release time for staff, and
- instructional materials and resources.

11. **Allocate the Physical Space** -- After the concept layout or floor plan is developed, and the curriculum writing is underway, one of the most difficult parts in the creation of workplace simulations is encountered:

Where do we find the space for this?

- Assure compliance with fire regulations and occupancy codes, as well as the American Disabilities Act in consideration of issues of physical accessibility.
- Clear plans with appropriate officials before you begin construction.
- Whenever possible, it is important to make the simulation part of the physical plant so that it becomes a permanent and systemic change to the school.

12. **Construct the Physical Plant** -- With the guidance of your business partner, construct the authentic workplace simulation site and the individual workstations. Obtain materials for the various workstations and the workplace props.

13. **Conduct Staff Development Sessions** -- Provide training for teachers in understanding the simulation concept and in working with the simulation materials. Also, provide orientation sessions for volunteers and parents. The classroom teachers who serve to field-test the simulation should have a mini-staff development program which includes the simulation pre-visit and post-visit packets for teachers and students. Some simulations require training days prior to opening.

14. **Test the Simulation** -- After the activities for the simulated workstations or departments are written (in terms of the employees, working in teams, who perform the tasks/jobs at that workstation or in that department):

- Have a different person/teacher read through the materials.
- Micro-test the activities with several different small groups of students, preferably in 'work teams' of four students per team.
- Field-test various parts of the simulation with an entire class.

15. Appoint a Teacher -- It is essential that a teacher/facilitator/site manager oversee the overall operation of the workplace simulation. This is particularly true if it is a districtwide or multi-district simulation because of the coordination, care, and maintenance involved.

Other possible steps to take:

Appropriate Schedules

Finding the best times to schedule workplace simulations is an important consideration. Students may be able to participate in simulations during the school day or through alternative approaches.

1. **During the School Day** -- Each workplace simulation student experience typically involves:

- **3-4 hours** of preparatory classroom activities prior to the workplace simulation site visit.
- **3-4 hours** at the simulation site (less for kindergarten, more for high school).
- **3-4 hours** of post-visit activities.

- **9-12 total hours** per simulation.

If a student experiences four workplace simulations per year, he or she would have anywhere between 36 and 48 hours of school-to-work involvement in several different industries in a large number of career/jobs which exist within each of these.

Other scheduling options during the school day:

2. **Alternative Approaches** -- Workplace simulations can be conceived of outside the regular school schedule. Suggested alternative options are:

- Student Enterprise: student-operated businesses or services that serve the school community, such as a store, bank, post office, lost and found.

- Summer Camp: full-day or half-day summer activity sessions utilizing simulation facilities to explore new ideas and problems.

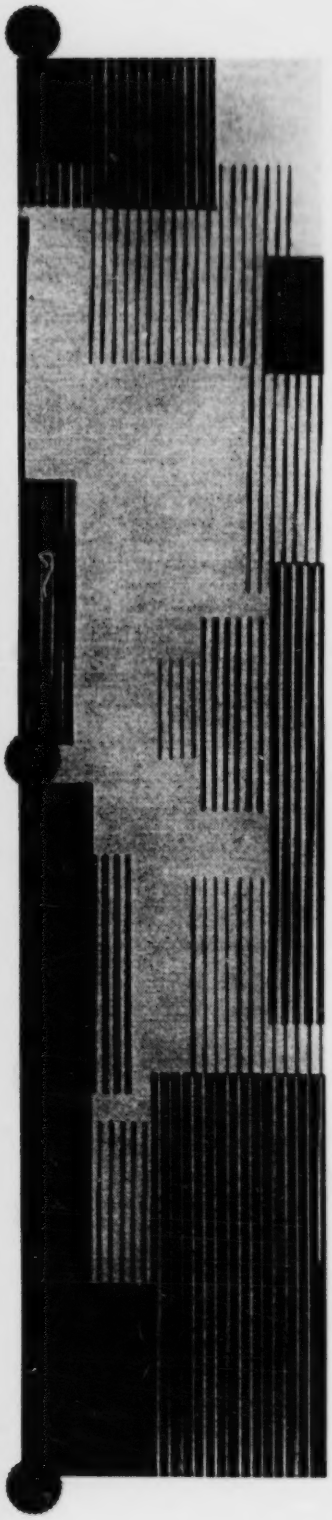
- Saturday Academies: Saturday activities allow for more direct participation by business mentors since more business people are free on weekends.

- After-School Clubs/Learning Centers: after-school workplace simulations can be designed to provide ongoing support for what students are learning in the classroom. A workplace mentor can also take a student to work in the late afternoon.

- College Weekends: weekends on a college campus allow students to participate in workplace simulations with the equipment and technology available at the college. This helps those students interested in exploring a technical career option.

Other alternative scheduling options are:

Involving Others



The effectiveness of workplace simulations depends greatly on developing partners and their roles and obtaining ongoing support. Workplace simulations work best when they secure the active and sustained involvement of business and industry partners and the meaningful and continual involvement of parents and parent groups.

Local Partnerships

The main benefits of successful partnerships for schools will be increased academic achievement for all students while in school. With that will come the potential for students to succeed both in work and in life.

1. General Assistance -- Any type of partners or partnerships can help workplace simulations, for example, by:

- Pooling their fiscal, human, and material resources to take advantage of economies of scale, or arrange to share staff technical expertise.
- Forming consortia with or among several school districts, postsecondary institutions, employer and community organizations.
- Providing guidance and expertise that other partners might not have.
- Helping to create, develop, implement, and sustain the program.

The contribution of each partner enriches the workplace simulation. The task at hand is too massive for any one individual or group to achieve alone.

It can't be done alone.

2. Business and Industry Alliances -- Schools need the help of business and industry. The workplace is changing so rapidly that schools must be in constant and direct communication with particular businesses and industries. With constant input received from business and industry, the workplace simulations can keep current and changes can be made easily and quickly.

Business and industry can help provide expertise in the development of the simulation. Business and industries have provided:

- advice in developing authentic curriculum materials,
- mentors in the schools and at the worksites,
- field trips,
- shadowing experiences,
- internships,
- creation of the simulated worksites,
- donation or loan of equipment and other resources,
- staff development programs for teachers and administrators,
- seminars for students, and
- mentors for teachers and administrators.

(TIP: Use this list as one of ideas and possibilities; allow the business to volunteer contributions appropriate for the company.)

Other ideas and possibilities of business contributions:

3. **Partnership Development** -- To develop effective local partnerships, consider the following helpful suggestions:

- *Extend invitations.* Do this as directly and as personally as possible, to any and all partners and potential partners, so they know they are welcome to visit whenever is convenient for them, so they can see what has already been developed, and can see the students "in action." This is necessary so the partners can acquire the vision to fully understand the workplace simulations philosophy and mission.

- *Maintain lines of communication.* Use a variety of methods, especially personal, direct communication (phone or visit) to/with existing partners or potential partners. Direct, personal communication is the most effective. Letters and/or surveys sent in the mail are not as effective and cost more.

- *Conduct workshops and sessions for business and industry partners.* These will explain the New York State Learning Standards and the educational research base upon which the workplace simulations model is founded. These should include sessions for parents and any and all community members, some of which may be unique for your school building, district, or partnership.

- *Establish parent and community centers.* These should be thought of more as a concept than as the building or classroom where it is located. The center may be as small as a shelf or a table or two in your library or any other room in any building. It should make all parents and community members feel welcome at any time. This location can include just a few chairs, maybe a telephone for them to use to contact others, and perhaps a coffee pot. The partners will do the rest.

- *Enlist current partners to speak to potential new partners.* This can be done either in a workshop format, by telephone, or in person.

- *Recognize and respect different interests and viewpoints.* Realize that getting the job done is going to take compromise and consensus. Always ask, "Is this going to be what is best for the ***students***?" Do not look at the political or financial gains for any one individual, a few individuals, or any group. Base your course of action, make your decisions both as individuals and as a partnership, and develop your strategies by envisioning the gains that your students can make as a result of the actions.

- *Listen and respond to parents, students, and the community in a quality way, i.e., customer satisfaction.* Educators must know what quality customer satisfaction is, how to provide it, how to work with dissatisfied customers, be aware of strategies to improve service to our customers, know how to measure customer satisfaction. They also must know who their customers are and keep them and their needs in mind at all times.

- *Make everyone feel needed -- because they truly are.*

- *Never forget to thank those involved personally.* This can be done by telephone, by conducting a community or partnership recognition program, or by written communication, preferably a handwritten note, so it doesn't look like an impersonal form letter. The best thank you notes come from the students.

- *Above all, trust those that are on your team.*

Other ways to develop effective partnerships:

Selected Participants

Previous sections have emphasized the indispensable nature of partnering with others in any workplace simulation effort. It is equally important to determine the actual roles to be played by major participants.

1. Building-Level Administrators -- The role of the building principal is crucial to the successful implementation of the workplace simulations model.

The enthusiasm, excitement, encouragement, energy, and effort shown by principals provide teachers and other staff members in their buildings with the desire and determination, industriousness and independence, pride, drive, and motivation to work together as a team.

Their support is necessary in securing space and in conveying to teachers that simulations are an integral part of curriculum and instruction. Principals who understand the workplace simulations model help other principals to understand. A principal is an important person in a staff development team and may also serve on design and construction teams.

Specific ways to involve building-level administrators (include names with roles):

_____

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2. **Teachers** -- The teachers who serve as facilitators at the workplace simulation sites are putting theory into practice. Include all kinds of teachers -- general, special, occupational, and alternative educators.

Teachers serve many important roles for the simulations:

- Teachers are empowered to make decisions.
- Teachers interact with building administrators, order buses, and arrange schedules for students to attend the simulation they facilitate.
- Teachers are a critical part of the team providing staff development for partnership members as well as serving as consultants to other districts.
- Teachers develop and revise curriculum for workplace simulations to improve the instruction based upon feedback from the students and classroom teachers.
- Teachers interact with and impact thousands of students and hundreds of teachers, playing more of a leadership role.

Specific ways to involve teachers (include names with roles):

3. **Industry Representatives** -- Representatives of business and industry can play numerous roles. They can serve as mentors not only for students but also for teachers.

Industry representatives can supply materials and provide staff development. When businesses know what schools need, and if they are assured that what they donate will be put to good use, they will find relevant materials to give to your program.

Active business members can help recruit new business members. Representatives from business can help design curriculum and give teachers ideas for connecting the world of work to what is being taught in the classroom.

Most importantly, business can help education by keeping educators current, on the cutting edge, to incorporate changes as they occur. The workplace simulations model, because it involves industry directly and mirrors today's workplaces, will allow educators to incorporate changes in the teaching environment as they are made in the work environment.

Specific ways to involve representatives of business and industry (include names with roles):

4. Parents -- Parents are concerned about the social, emotional, and academic growth of their children. They have many talents and can be sought on an individual basis through students as well as through parent organizations in the school.

Parents are engaged in their own businesses or work for companies that can help facilitate the development of a workplace simulation. They are logical partners at any point in the process of designing and implementing workplace simulations. Parents may also serve as volunteers to help supervise a simulation.

Specific ways to involve parents (include names with roles):

5. School Board Members and District Administrators -- Gain and sustain support from your School Board of Education and Central Office Administrators. Any initiative is founded on their support of, and belief in, those who are representing the initiative.

Good lines of communication are essential every step of the way. Ask to present to the board frequently. Keep presentations brief because board members and central office administrators are busy people and have limited time. As suggested earlier, have students make presentations. This is a great experience for them and is impressive at the same time. Here are a few things to keep in mind in developing your presentation:

- Be fully prepared.
- Know your material.
- Have good examples.
- Have evidence based on sound data.
- Good press coverage in the newspapers about your programs is valuable.
- Do NOT ask for financial support first.
- Instead go before them and show that you have obtained donations or external funding, no matter how small, from outside agencies and sources which support your ideas.
- Show them that others believe in your ideas.
- Demonstrate benefits for students.

Today, most school boards have limited financial resources available for new initiatives. Develop your initiative, obtain data about its impact on teaching and learning. Then, if resources are needed, they will be probably be more receptive to providing support.

Specific ways to involve board members and district administrators (include names with roles):

_____

_____

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_____

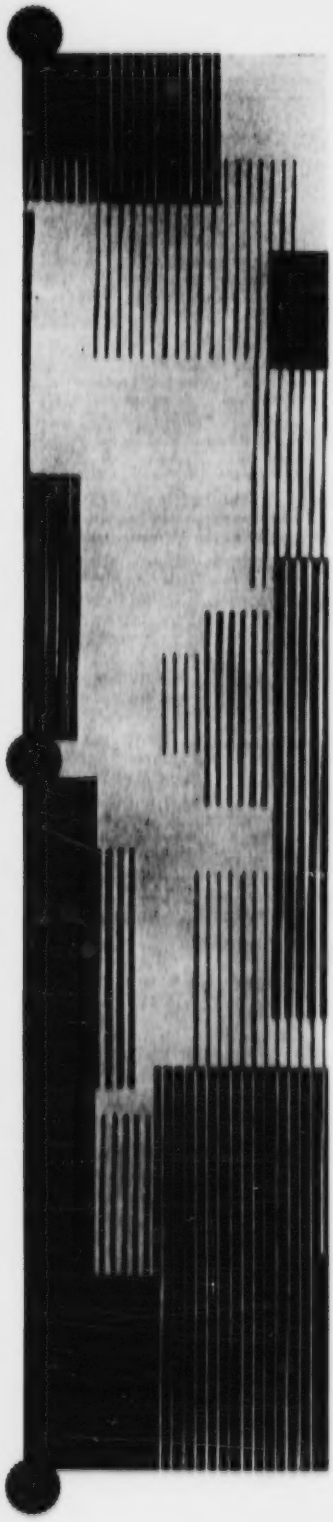
Cooperative Support

Funding and sustaining workplace simulations must be a planned and concerted effort. The merits of this learning approach need to be promoted to both educational colleagues and the public in the attainment of the New York State Learning Standards. The acceptance of school-to-work as a system with core subject matter, that is, concepts and skills that should be integrated K-12 into ***all*** disciplines, must occur. Such acceptance should lead to general funding for the teaching and learning experiences required by school-to-work transitions.

The effectiveness of workplace simulations depends primarily upon the cooperative support of business, volunteer mentors, and the pooling of fiscal resources by those educational institutions using the simulation site to support the facilitator and the maintenance of the site. Non-district start-up monies have been found by some districts through the following sources:

- Private Foundations
- State and Federal Grant Programs
- Local Businesses
- Parent-Teacher Organizations
- Individual Donations

Other sources of support for workplace simulations:



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NOTE: Above, the number in parenthesis indicates the grade level of the simulation. On the following pages, each sample simulation identifies specific New York State Learning Standards through the use of letter codes. The standards with codes are provided in Appendix B.

Authentic Archaeology

Grade Level
5

Learning Standards	
ELA	#1,2,3,4
CDOS	#1,2,3a,3b
MST	#2,3,4,5,6,7
SS	#1,2,3

Career Major
Natural and Agricultural Sciences

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Description

Students experience a "dig". They delve into layers of a portable midden to learn about the past while comparing and contrasting events in the present and the future. They make inferences about situations and events from objects discovered.

Prior to visiting the site, students become familiar with the vocabulary of archaeology, review the writing of a business letter, and participate in several other activities that will familiarize them with artifacts from the past and techniques of excavations.

At the site, students work in groups of four. Each member of the group has a specific job: excavator, curator, map maker, and business officer. Students need to be at the excavation site for at least 60 minutes to rotate through all job assignments.

With each job is an activity / responsibility. The excavator carefully removes the soil layer by layer until an object is uncovered, then tells the map maker exactly where it was found. The map maker maps each layer of the site and indicates where each object was found on the map. The curator carefully cleans the object with a brush. After the objects are cleaned the curator numbers them and groups them with similar objects. The business officer handles all correspondence. A part of this correspondence will include press releases to the media and fund raising letters to the community. The business officer is also responsible for keeping an accurate accounting of all money taken in and spent.

Post activities include context and chronological order games.

Instructional Goals

- Classification
- Inference
- Letter Writing (business)
- Measurement
- Local History
- Comparing and Contrasting
- Persuasive Writing

Benjamin Cosor Elementary School Bank

Grade Level
5

Learning Standards	
ELA	#1,2,3,4
HPEHE	#3
CDOS	#1,2,3a
MST	#2,3,7

Career Major
Business/Information Systems

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Description

Fifth grade students run a deposit only school bank. They have been trained by the branch manager of Ellenville National Bank to serve as tellers and customer services representatives. The bank is open every morning from 8:45 to 9:15. It is built into an alcove in the main hallway.

Once an account is open (parental permission required), students visit the bank on their assigned day with others from their grade level. This helps manage traffic and allows parents to send money just once per week. Students arrive at the Customer Service desk and tell the representative their name and their teacher's name. The customer service representatives assist customers in opening new accounts by typing applications, typing passbooks, and aiding customers in filling out deposit slips. They are then directed to a teller window where deposit transactions are completed.

The tellers are responsible for counting the customer's money and verifying that the amount listed on the deposit slip matches. Then, using a teller machine they print the appropriate information on the deposit slip. Next, the deposit is posted in the customer's passbook via the savings posting machine. Finally, the amount posted to the passbook is confirmed with the customer. The passbook is filed back under the student and teacher's name by the customer service representative.

Tellers must also close out at the end of the morning and their cash drawers must prove out each day.

Instructional Goals

Students will:

- count, calculate, post, and tally monetary deposits.
- enhance interpersonal skills by interacting socially and cooperatively to aid customers.
- provide information necessary in making a deposit and setting up an account.
- acquire hands on skills in the area of bank operations.
- acquire skills in money management through a progression in math skills.
- work cooperatively in teams.
- learn and apply the meaning of confidentiality and trust as it applies to customer accounts.

Benjamin Cosor Elementary School Store

Grade Level
6

Learning Standards	
ELA	#1,2,3,4
HPEHE	#3
CDOS	#1,2,3a
MST	#2
SS	#4,5

Career Major
Business/Information Systems

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Description

Sixth grade students operate a school store which is equipped with the basic school supplies needed by the student population. The store is open daily from 8:45 to 9:15 a.m. And is built into an alcove in the main hallway. Each day, the student employees count the starting bank and start an inventory sheet, logging in the amount of the starting bank, the date, and their names on the top of the sheet, before opening the store. Students take one of several roles necessary to run the store. The jobs include: cashier, salesperson, inventory clerk, stock person, and security / crowd control.

The cashiers use a cash register to input the cost of the items and subtotal them. They then enter the amount of money given to them by the customer and return the appropriate change. At the end of the shift, the cashiers return the money in the cash drawer to the bank bag and give the bank bag to the advisor or to the office to be placed in the school safe.

The salesperson and the inventory clerk work together to hand the customers their merchandise and record the item(s) purchased on the daily inventory sheet. After all customers have been served, the inventory control clerk tallies up the total number of each item sold and places the day's inventory sheet in the bank bag with the day's earnings. At this point the salesperson and inventory clerk often double as the stock people and restock and straighten shelves.

During operating hours, there are two people stationed outside the store to deal with customers. Each potential customer is instructed to go to their classroom first to obtain a store pass. This cuts down on the amount of students inadvertently marked absent and lets the teacher know where they are. Once they have arrived at the store, they are instructed to stand on line by the employee in charge of crowd control. This person is responsible for making sure doors are not blocked, that students keep a straight and quiet line, and that only two students go to the store window at a time.

The store also has accountants. These students count the day's earnings each afternoon during their lunch / recess. They separate the starting bank and then fill out a cashier's sheet detailing the amount of money that has been earned. This money is placed in a separate bank bag for future deposits. The students record the day's receipts on a daily log sheet which keeps a running record

Benjamin Cosor Elementary School Store (continued)

of money earned by the store. Weekly deposits are prepared for the bank and inventory is ordered on an as needed basis.

Instructional Goals

Students will:

- add individual and daily receipts.
- balance the cash drawer with daily receipts.
- track inventory and order necessary supplies.
- secure supplies and monitor all monetary transactions.
- use interpersonal and cooperative skills to work together and to deal with their customers.
- learn time-management skills in order to arrive to "work" in a timely manner and return to class promptly after their shift.
- acquire knowledge about the world of work.

Can-Do Company

Grade Level
6

Resources
School supply budget

Learning Standards	
ELA	#1,3,4
HPEHE	#3
CDOS	#1,2,3b
MST	#1,2,3,5,6,7
SS	#4

Career Major
Engineering/Technologies

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Description

The Can-Do Container Company is an extended-time activity in which a small team of students "works" for a company that designs and constructs cardboard containers. The containers are to hold specific items that when placed into the containers will be ready for shipping. For example, the company would make cardboard containers to hold and ship eight crayon boxes, four boxes of 35 mm film, or five hardcover copies of a popular novel.

Students document activity in their journal throughout the project. They make paper drawing of boxes, identifying and recording necessary measurements, make an oaktag template, construct cardboard box out of raw cardboard, and test box for strength. They describe tests in their journal, using the scientific method to document hypothesis, materials, procedures, observations, and conclusions. The activity culminates with a written report and oral presentation to the class summarizing the project.

Materials necessary include:

- large sheets of common cardboard, oaktag, and drawing paper,
- hacksaw blades,
- rulers measuring in both inches and centimeters,
- scales measuring in both grams/kilograms and pounds/ounces, and
- white glue, masking tape, cellophane tape, scissors.

Students should have experience in group work, such as establishing rules, procedures, and behaviors to ensure successful completion of the project.

Instructional Goals

Students will:

- work with others towards a common goal.
- design a container, measuring and defining appropriate dimensions.
- observe, communicate, organize, analyze, and classify data.
- build a model.
- identify, and control for, variables.
- test the container.
- determine shipping costs of sending the container to various locations.
- present to the class and write a final report.

Clipper Paper Clip Company

Grade Level
5

Learning Standards	
ELA	#1,3,4
CDOS	#2
MST	#1,2,3,5

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Description

Students, working in groups of four, serve as the quality control team for the Clipper Manufacturing Company. They have received a letter from a dissatisfied customer. Rotating from station to station, students use six different instruments including an electron microscope to examine the paper clip samples made by different machines and by different workers. They record observations about size and width, shape, color, texture, and luster of the different clips. Collaborating with other team members, students determine if the defect was due to a machine or worker/shift problem. They then prepare a response to the customer that describes the findings and offers appropriate compensation for the inconvenience.

Instructional Goals

- Letter-writing Skills
- Observation
- Classification
- Measurement
- Ability to work effectively with a variety of scientific instruments (hand lens, simple magnifier, stereo microscope, videoscope, compound microscope)

Jobs in School Program

Grade Level
K-6

Learning Standards	
ELA	#1,2,3,4
HPEHE	#3
CDOS	#1,2,3a
MST	#2,5,6,7

Career Major
Human/Public Service

Submitted by:

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Porter Magnet School
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Description

At Porter Magnet School, students are offered the opportunity to apply for positions throughout the school. Students fill out an application form, interview, and are hired for specific jobs which include:

- office assistant
- student computer assistant
- maintenance helper
- nurse assistant
- bookstore positions
- library assistant
- "Porter Patrol" positions
- TV station positions
- student greeters
- videographers
- newspaper reporters
- newspaper photographers

Students work with an adult employee in the school and are trained to do the job. Students perform the duties of the positions at different times as needed. Some are required every day, others once a week, and even others on an as-needed basis.

Jobs are done within the school facility. No extra supplies are needed, only those that are used on a daily basis by employees within the school. Students assist employees with their jobs.

Instructional Goals

- Teach career skills to students.
- Improve academic skills.
- Prepare students to function in the 21st century.
- Introduce career possibilities.
- Provide students with the skills necessary for success in career areas.

The Magnificent Plastics Manufacturing Facility

Grade Level
6

Learning Standards	
ELA	#1,3
CDOS	#1
MST	#1,2,3,4,5,7

Career Major
Engineering/Technologies

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Description

This simulation experience is designed to take place during one school day and is supported by pre and post visit activities back in the classroom.

At the simulation site, students rotate through eight work stations:

- Accounting -- estimating the cost of the product manufactured.
- Chemical Engineering -- finding out how to create plastic.
- Engineering Department -- recycling plastics after the sale.
- Sorting/Compositing -- taking concern for the effects of plastics on the environment.
- Product Design Department -- using CAD equipment to make up plans.
- Mold Design Department -- making and testing the mold.
- Production Department -- injecting mold with hot plastic.
- Quality Control -- checking finished product for correct size, weight.

Working as part of a team, students have the opportunity to learn about how plastic is made and where it comes from. They design a product using the computer, estimate the cost of the product, design the mold, and experiment with recycling.

The injection molding machine used in this simulation was loaned to the school district by Newburgh Molded Products. The Society of Plastic Engineers also made a donation towards the simulation.

In interviewing students and teachers at the conclusion of their visit, there is initial evidence of learning. One year later, students can still discuss their experiences and show evidence of retention regarding plastics and work.

Instructional Goals

Students will:

- be exposed to different facets of plastics manufacturing.
- learn about the importance of plastics in our lives.

Mechanicstown School Bank

Grade Level
4,6

Learning Standards	
ELA	#1,3,4
HPEHE	#3
CDOS	#1,2,3a
MST	#2,3,6,7

Career Major
Business/Information Systems

Submitted by:

Antoinette M. Belfiglio
Mechanicstown Elementary
East Main Street
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(914) 343-9938

Description

A small room has been set up to look like a bank. The bank employs tellers and customer services representatives. On Tuesday morning, students line up, holding their bank books to make deposits. All deposits are made in the school bank and picked up by someone from Ellenville National Bank. Any withdrawals must be made at the regular bank.

The Ellenville National Bank in Middletown provided equipment and personnel to train students, staff, and volunteers as well as some supplies. Grant funds ($5,000) were used to purchase furniture and additional equipment and supplies. The bank is equipped with a typewriter, adding machines, deposit machines, bank books, applications, and other incidental supplies.

Two teachers supervise the 12 student employees.

Instructional Goals

Students are provided the opportunity to:

- Develop an awareness of the range of career options in banking that are available to them in a rapidly changing workplace.
- Make informed choices regarding career paths and understand the impact those choices will have on their lives.
- Acquire knowledge and a wide range of transferable skills.
- Acquire positive attitudes, behaviors, and ethics fundamental to success in the workplace.
- Develop skills needed to interact with others.
- Develop an awareness of the importance of personal responsibility and good work habits.
- Apply the concepts and skills learned in the classroom to a real situation.

Mechanicstown School Store

Grade Level
5

Learning Standards	
ELA	#1
HPEHE	#3
CDOS	#1,2,3a
MST	#3,5,7
SS	#7

Career Major
Business/Information Systems

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Description

This school store is operated by fifth grade students and supervised by their teachers. It is open four mornings a week, before the start of school, to give all students (K-6) an opportunity to shop for school supplies, novelty items, and holiday items. There are lines of shoppers waiting each day.

Students are involved in purchasing the inventory, serving store customers, and the accounting of the store monies.

A $500 loan from the PTO was used to start the business. This was repaid in two months. The store is currently operating on its profits.

The store utilizes a display table, a cash box, and a locked cabinet for the storage of merchandise.

Instructional Goals

Student employees are provided the opportunity to:

- Apply academic skills and concepts to a real-life situation.
- Make decisions, solve problems, and develop communication skills.
- Understand systems, monitor performance, forecast trends.
- Develop a sense of responsibility and ability to manage one's self and time.
- Work cooperatively with others.
- Learn about different occupations involved in sales (*e.g.*, purchasing, accounting, advertising).

The patrons of the store are being provided with opportunities to:

- Apply math concepts and skills when purchasing merchandise.
- Make decisions and communicate needs.
- Learn the value connected with saving.
- Read schedules.
- See their peers engaged in an employment situation.

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Mechanicstown Wee Deliver Post Office

Grade Level
K-6

Learning Standards	
ELA	#1,3,4
HPEHE	#3
CDOS	#1,2
MST	#3,5,7
SS	#2,7

Career Major
Business/Information Systems

Submitted by:

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Description

This simulation is an internal school post office operated by students and supervised by two teachers with the support of parent volunteers. The U.S. Post Office provided a presentation and videotape about the workings of a post office.

There are mail boxes in the halls, which have all been given the names of U.S. Presidents, so that each room has a street address, a small post office, mail bags for the carriers, and a street directory.

Students apply for positions within the post office by completing an application, obtaining references, and going through a job interview.

This simulation utilizes sorting boxes for the mail, mail bags, mail boxes for collection and at the delivery points, street signs, stamps to process the mail (such as "Return to Sender"), and a small space for the main post office.

A large amount of mail is delivered each week. On opening day, over 1,000 pieces of mail were processed.

Instructional Goals

Student employees are provided the opportunity to:

- Apply academic skills and concepts (particularly reading and writing) to a realistic situation.
- Make the connection between the world of school and the world of work.
- Enhance self-esteem and develop responsibility.
- Learn to be a part of a team that includes students of different ages.
- Learn to make decisions, solve problems, follow directions, communicate with others, and think on different levels.
- Learn about different occupations involved in sales (*e.g.*, purchasing, accounting, advertising).

Pee Wee Paper Company

Grade Level
2

Learning Standards	
ELA	#1,2,3,4
HPEHE	#2
CDOS	#1,2,3a
MST	#1,2,3,4,5,6,7

Career Major
Business/Information Systems
Engineering/Technologies

Description

Second grade students work in a simulated paper factory producing recycled paper. The simulation consists of two components: the factory, or production site, and the research and development site where students examine and test various types of paper for strength and absorbency.

Instructional Goals

Students will:

- Learn to make informed choices, regarding careers in the paper industry.
- Develop transferable skills.
- Acquire positive attitudes, behaviors, and ethics that are fundamental to success in the workplace.
- Solve problems and do activities related to the simulation.

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Television Station

Grade Level
K-6

Learning Standards	
ELA	#1,2,3,4
TA	#1,2,3
HPEHE	#2,3
CDOS	#1,2,3a
MST	#1,2,3,5,6,7
SS	#1,2

Career Major
Engineering/Technologies

Submitted by:

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Description

Porter Magnet School has an in-house television station called Porter WPND Channel 7. All morning announcements and afternoon bus runs are broadcast over televisions throughout the school by Porter students. Students complete employment application forms for the positions in which they are interested. They are then interviewed by teachers and selected for positions. Students interested in becoming television announcers must audition and are rated by the use of a rubric as well as videotaped. Positions at the station include: Director, Floor Manager, Master Control Operator, Audio Operator, Announcer, Camera Operator, Cue Card Handler, and Set Designer. Once the students are hired, they perform the functions on a daily basis. They report to work at their assigned times and are supervised by two teachers.

The television studio is set up on a permanent basis. A room is needed within the school to hold all the necessary technology: television, VCR, audio/video mixer, title maker, camera, and tripod. Each classroom must also be equipped with a television. Onondaga Community College, a business partner, has a television video studio on its campus. Porter Students visit OCC's station once a year. OCC acts as a resource for questions, etc. Business people are featured as career guest speakers every morning on the announcements. Many students apply for positions at the TV station, but only a few are selected. The students involved in the station gain excellent team, communications, and workplace skills. Several have expressed a desire to pursue careers in the positions they have held at the station.

Instructional Goals

Television and video production can create excitement in the classroom, motivate students, and teach skills that may inspire students to consider a future in television or communications. Our goals are to:

- improve academic skills.
- prepare students to function in the technologically oriented world of the 21st century.
- introduce career possibilities that will provide students with the skills necessary for success.

Reading, writing, listening, researching, learning to work as a team, and public speaking skills complement the vast array of production and critical viewing skills.

Well-Made Bakery

Grade Level
2

Learning Standards	
ELA	#1,3,4
HPEHE	#2
CDOS	#1,2,3a
MST	#2,3,4,5,6,7

Career Major
Health Services

Submitted by:

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Description

This simulation exposes second graders to all facets of a bakery. Prior to visiting the simulation, each class participates in activities to familiarize students with bakery vocabulary, kitchen computing, kitchen math, kitchen utensils and measuring devices, and the food pyramid. Basic math skills of addition and subtraction of money with borrowing and carrying are necessary. The students should also be familiar with monetary units.

At the simulation, students prepare chocolate chip cookies. Moving through eight work stations, they experience not only the actual mixing and measuring of the cookie batter but also the jobs of maintenance, product design and nutrition, shelf stock person and product wrapper, sales staff, business office, and public relations / advertising.

After the simulation is completed they become "taste testers". As a post-visit activity, students brainstorm an ad for a new bakery product.

Instructional Goals

- Simple Addition, Subtraction, and Multiplication
- Communication Skills (Persuasion)
- Measurement
- Packaging a Product
- Advertisement
- Safety Requirements

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You Are Here, Maps, Inc.

Grade Level
3

Learning Standards	
ELA	#1,2,3,4
CDOS	#1,2,3a
MST	#1,2,3,4,5,6,7
SS	#3

Career Major
Engineering/Technologies

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Description

Third grade students work with compasses and maps of various types to develop the skills needed to navigate, survey, make maps, and to find one's way. The value of measurement, scale drawing, and direction are stressed.

Instructional Goals

Students will:

- develop an awareness of the range of career options as it pertains to this industry.
- learn to make informed choices regarding career paths.
- acquire knowledge and a wide range of transferable skills.
- acquire positive attitudes, behaviors, and ethics fundamental to success in the workplace.
- acquire knowledge in map making, orienteering, and surveying.

FESCO
The Forward Educational Supply Company

Grade Level
6,7,8

Learning Standards	
ELA	#1,3,4
HPEHE	#2,3
CDOS	#1,2,3a
MST	#1,2,5,7
SS	#4

Career Major
Business/Information Systems
Engineering/Technologies

Submitted by:

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Description

FESCO was started with a group of eighth grade special education students in March 1997. This simulation is a mail order catalog business and manufacturer of educational supplies for primary level teachers. Its product lines include math manipulatives, containers, sorting devices, bulletin board items, and customer-made or specialty items. FESCO also serves as a clearinghouse for used magazines and catalogs (sources of pictures) for primary teachers.

Middle school students design, make, and market the math manipulatives and other "hands-on" instructional products for primary-level students. They create a catalog and an advertising campaign to "sell" their products to elementary classroom teachers. The medium of exchange, the "money", is recyclable items that the company can turn back into educational supplies.

Students conduct a market analysis to see which products to make and to see if their products will "sell". Students collect the raw materials, produce the manipulatives, and package and ship the product. Most of the products are constructed from reusable trash items found in the school (milk cartons, cans, plastics, cardboard boxes, paper, etc.) Other raw materials for manufacturing may include clothes hangers, clothes pins, magazines, catalogs, paint chip samples, fabric samples, wallpaper samples, plastic milk/soda cartons, soda caps, zip lock plastic bags, clean tin cans, egg cartons, and geometric shapes of plastic, wood, and metal. These may be solicited from businesses and parents.

Instructional Goals

- To establish a real world business run by students.
- To provide an opportunity for students to develop leadership skills, cooperative group skills, and communication skills.
- To demonstrate the connections between school and work by practicing elements of a real business.
- To encourage the use of math manipulatives at the primary level.
- To develop a "Learning Buddies" relationship between older and younger students.
- To integrate elements of technology, language arts, and math.

Hydroponics Business

Grade Level
Middle School

Learning Standards	
ELA	#1,2,3,4
HPEHE	#1,2,3
CDOS	#1,2,3a,3b
MST	#1,2,3,4,5,6,7
SS	#4,5

Career Major
Business/Information Systems
Natural/Agricultural Sciences

Submitted by:

Don Crispell
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Description

Valley Central Middle School students will use a hydroponics greenhouse to grow healthful produce, using environmentally sound methods. Classes will implement interdisciplinary methods to design, develop, maintain, and evaluate all aspects of the business. Edible products grown will be sold to the school cafeteria.

The Valley Central School District has built a greenhouse that is attached to the Middle School technology wing. The greenhouse will be equipped with the necessary supplies and equipment, including two seven-day programmable timers, nutrient solution, and Rockwell growing media. Technology teachers will work with other subject area teachers to integrate the hydroponics project into other grade 6 and 7 curriculum.

Several local businesses will act as consultants to the project. They will provide advisement in areas such as accounting, distribution, management, and marketing, and serve on the company board of directors.

The hydroponics simulation began operation in September 1997.

Instructional Goals

The Valley Central Middle School hydroponics project will use an interdisciplinary curriculum and teaching practices to develop student SCANS skills and competencies, including, but not limited, to:

- Allocation of resources.
- Information acquisition, organization, evaluation, and communication.
- Team participation.
- Understand systems.
- Select, apply, and maintain technology.

In the Pharmacy

Grade Level
8

Learning Standards	
ELA	#1,3,4
HPEHE	#2
CDOS	#1,2,3a
MST	#1,2,3,4,5,6,7
SS	#4,5

Career Major
Health Services

Submitted by:

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Description

Students become familiar with all parts of the pharmacy. Prior to coming to the **"In the Pharmacy"** simulation, the class should be familiar with and comfortable with the concepts of ratios, percents, dilutions, and proportions.

Students will:

- create a database file on a pharmacy client.
- process a "prescription."
- investigate the use, ingredients, dosage, and warnings for several over-the-counter products.
- dilute solutions to appropriate concentrations.
- explore ratio and sampling concepts.
- follow instructions in the mixing of compounds.

Instructional Goals

Students will apply:

- ratios,
- percents,
- averages,
- business letter writing.
- comparing and contrasting techniques.
- methods to create a product with a simple formula.

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Metropolis Art Museum

Grade Level
7

Learning Standards	
ELA	#1,2,3,4
HPEHE	#2
CDOS	#1,2,3a,3b
MST	#1,2,4,5,6,7
SS	#1,2,3

Career Major
Engineering/Technologies
Arts & Humanities

Submitted by:

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Description

The curator has been given four fiber samples. The samples are from costume fragments donated to the museum. Documentation for the fragments is lost. The only clue to their identification is that they belong to one of the museums art shows:

- The Treasures of King Tut
- George Washington – Our Leader at Valley Forge
- Aiming High -- Basketball in the 1980's
- Dragon in the Clouds -- Chinese Embroidery

The curator must send the samples to the textile lab to identify the fibers to discover to which art show the fragments belong. Students, working as a team of museum scientists, examine the samples observing the weave, origin, texture, luster, and elasticity of the fibers using a variety of magnifying devices. They identify the costume fragments and submit a final report indicating to which exhibition each fragment belongs.

The lab used for this simulation is equipped with a scanning electron microscope which is used for other simulations, also. Costume samples and artifacts for this simulation were provided by the New York City Metropolitan Museum of Art.

Instructional Goals

Students will:

- work as a team to solve the problem.
- use several curriculum areas to support final lab decision: social studies, American history, environmental science, geography, and life sciences.
- rely on higher-level thinking skills to reach the correct conclusion.

Electronics Class Goes to Work

Grade Level
10,11,12

Learning Standards	
ELA	#1,3,4
HPEHE	#2
CDOS	#1,2,3a,3b
MST	#1,2,3,4,5,6,7

Career Major
Engineering/Technologies

Submitted by:

Susie Kelley
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Description

This simulation differs in that it uses the workplace -- a local business, Lisk Coils -- as its simulation site. (The experience provided could be considered work-based learning.)

Students from the electronics class have several lessons on workplace standards, workplace behaviors, and the electronics basics prior to the site visitation.

At the site, students are given a brief overview of the facility. They are then paired with an employee and rotate through every aspect of coil winding from cutting leadwires on the Eubanks machine to winding and finishing up with the covering, yarning, varnish dipping, and inspections processes. Students have the opportunity to actually sit down and do the work themselves. From this experience, students learn about the materials involved, observe the process required, and receive an overall picture of jobs in the manufacturing of electronics

Instructional Goals

Students will:

- apply classroom/course learning objectives (in the electronics class) to a real-world setting.
- observe and practice workplace behaviors and standards.
- explore careers.
- appreciate gender equity. (All employees encountered by students in the simulation, including the plant manager, are female.)

The Financial Trust of Lincoln High School

Grade Level
High School

Learning Standards	
ELA	#1,3,4
CDOS	#1,2,3a
MST	#2
SS	#4,5

Career Major
Business/Information Systems

Submitted by:

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Description

The Financial Trust is an on-site, student-operated banking facility offering savings accounts and loans to students and staff members while providing on-the-job experience for students in the Academy of Finance magnet program. Students who work in the bank receive not only classroom training, but have the opportunity to learn practical financial skills. Students are assigned specific responsibilities such as processing deposits, opening new accounts, administering loans, and rendering statement. Additionally the Financial Trust provides students with hands-on experience in consumer lending, retail deposit services, accounting, collecting, and marketing, while providing a service and learning experience for the entire student body.

Two computer-based banking simulations support the practical application that students use in the bank: The Chelsea Bank and the Court Square Community Bank, both products of Classroom, Inc. These simulations are incorporated into classroom instruction.

Start-up costs for the bank were provided by a grant from the Travelers Foundation. A grant from Classroom, Inc. provided the bank simulations. An instructor from the Academy of Finance is responsible for managing bank records and the students working at the bank.

To date, the bank has 103 bank accounts and $7,700 in assets.

Instructional Goals

Students will:

- gain practical on-the-job experience in banking services.
- reinforce their classroom instruction.
- understand banks and the business world.
- value working collaboratively.
- learn personal money management.
- learn about business ethics, judgement, and interpersonal skills.
- learn decision making, based on factual and subjective information.
- practice effective communication.
- apply analytical skills.
- interpret information.

Personnel Training Workshops for Employees of Ford Motor Company

Grade Level
11,12

Learning Standards	
CDOS	#2
MST	#1,2,3,7

Career Major
Business/Information Systems

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Description

Students simulate a five-day training session as Ford Motor Company employees. During the class period, they work in small teams to organize data, take inventory, and determine the wholesale and retail value of their inventories. For overnight tasks, they are provided with a "training reference manual." They use the manual to familiarize themselves with the mathematical skills, terminology, and concepts for which they had constructed a need during the class session.

The trainees receive $10 a day for each of the five days (bonus pay is also available) and, on the sixth day, they participate in a training assessment that has a maximum value of $50 ($100=100 points as assessment).

The students obtain solutions to the tasks in the simulation without prior knowledge of the mathematical tools available. After each task is completed, the mathematical tools that would have facilitated the process are introduced, explained, and/or demonstrated on a TI-82 graphing calculator.

Instructional Goals

The mathematical instructional goals are:

- definition of a matrix, an entry, a row, a column, and the dimension (order) of a matrix.
- operations with matrices: definition of equality, addition, subtraction, standard multiplication, matrix multiplication.
- the inverse matrix, a singular or nonsingular matrix, determinants, and solving system of linear equations.
- TI-82 graphing calculator keystrokes for the above.

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Virtual Enterprise International

Grade Level
High School

Learning Standards	
ELA	#1,3,4
CDOS	#1,2,3a,3b
MST	#1,2
LOTE	#1,2
SS	#3

Career Major
Business/Information Systems

Submitted by:

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Description

The Virtual Enterprise is a comprehensive and student-oriented approach towards teaching and working which provides practical, task-oriented instruction in a simulated business environment. Students work as an employee in a firm. Firms transact with each other and with the 2,200 practice firms located in Europe, South America, Canada, and Australia through the umbrella organization, Virtual Enterprises, International.

Students immediately apply academic and work-related knowledge learned in class to real world business situations and connect to an international network. Six virtual enterprise companies (office supplies, travel and tourism, financial services, professional development and training, video and book club, manufacturing of trophies and plaques, advertising, and banking services) were established in September 1996. Each enterprise is located in a New York City High School and operated with participation from a corporate partner in the development of the virtual business and in mentoring students and teachers.

Virtual Enterprise offers students the opportunity to experience all facets of being an employee of a firm. Students are responsible for the completion of real work-related goals, objectives, transactions and daily activities -- applying knowledge, skills, and personal characteristics needed to succeed in employment and/or postsecondary education.

Each virtual enterprise site is equipped with phones, a fax machine, a copy machine, Internet connected computer workstations, office furniture, office partitions, a conference table and chairs, and a presentation area.

Instructional Goals

Students will:

- develop skills and competencies to succeed in employment.
- participate in the international network of Practice Firms.
- acquire global economic knowledge including monetary and business systems.
- expand their knowledge of history.

Virtual Enterprise International (continued)

- apply academic and work-related knowledge learned in class to real-world situations, including the use of languages other than English.
- gain "hands-on" experience about a variety of careers.
- use technology applied to business.
- understand management objectives and organizational structures.
- make decisions, analyze results, and refine methods and procedures.
- negotiate transactions and assess results of decisions.
- develop initiative, creativity, and readiness to work in a team.

Windows to the World-Extended English Class

Grade Level
11,12

Learning Standards	
ELA	#1,2,3,4
TA	#1,2,3,4
CDOS	#1,2,3a,3b
MST	#2,7
SS	#7

Career Major
Individualized dependent on career interest.

Submitted by:

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Description

Students complete a five-part project, based on a 3-6 hour shadowing of selected career interest, by:

- researching a chosen career and prepare a report.
- presenting a 6-8 minute speech to the Rotary Club.
- developing an electronic portfolio, *i.e.*, video, scanner, MIDI music lab.
- preparing a reflection report and evaluation.
- writing business letters to outside contacts and business memos to the teacher.

This project emphasizes the importance of good communication skills in the business world. Students simulate business communications in a variety of formats and mediums as they prepare their individual projects. The teacher and the Rotary Club serve as audience of the business communications.

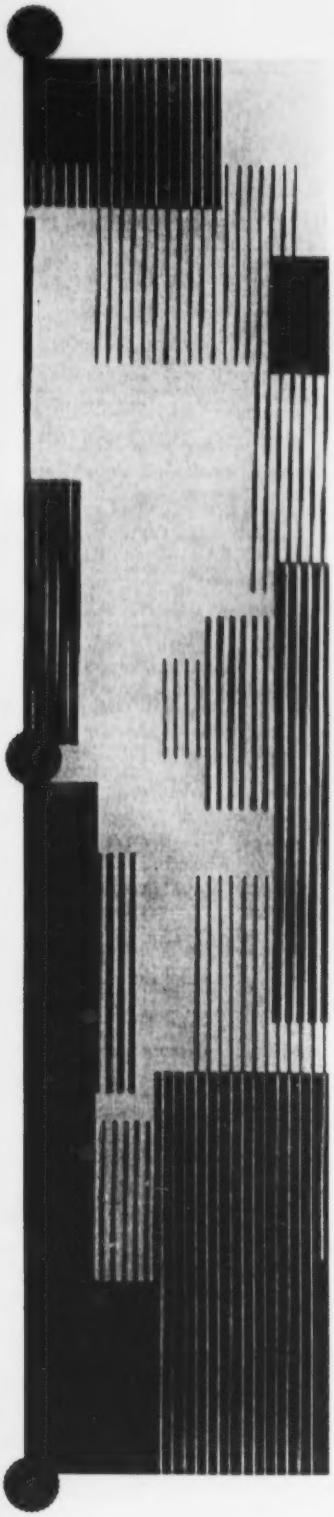
Each segment of the project has a trouble report form. It is the student's responsibility to assess individual progress on each segment and, if a problem occurs, a formal report is to be filed. The report is to include a succinct description of the problem, the student actions already taken to address the problem, and a series of legitimate student suggested solutions.

Only business documents (*i.e.*, letters, memos, reports) with 100 percent accuracy are accepted.

Instructional Goals

- Expose the students to possible careers.
- Reinforce skills necessary to function in the real world.
- Reinforce multi-disciplinary aspects of the real world activities.
- Present students with authentic audiences.
- Offer electronic portfolio options to expand the display of individual student talents beyond the traditional paper documentation.

Appendices



Appendix A: Planning Guide

Simulation Planning Guide 65

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SCANS Skills and Competencies Checklist 73

Appendix C: Simulation Layouts

Simulated Plastics Manufacturing Facility 75
Interior Art and Design Business 76

Simulation Concept:	**Grade Level:**
Team Formation: Curriculum: Design: Construction: Business Partner:	**Business Tour:** Contact Person: Telephone: Visit Scheduled for: Accessible? Yes_____ No _____
Company Notes: CEO: Background about Business: Skills and Abilities Required of Workers: Curriculum Ideas:	Possible Donations:

Employee:	**Employee:**
Job Title:	Job Title:
Job Duties:	Job Duties:
Academic Skills Required:	Academic Skills Required:
Curriculum Suggestions:	Curriculum Suggestions:
Employee:	**Employee:**
Job Title:	Job Title:
Job Duties:	Job Duties:
Academic Skills Required:	Academic Skills Required:
Curriculum Suggestions:	Curriculum Suggestions:
General Observations about Work Environment:	

Workplace Diagram:

Possible Space:

Budget:

Construction Materials: _____

Simulation Props: _____

Financial and In-kind Resources:

Substitute Pay: _____

Other: _____

TOTAL _____

Curriculum:

Student Guides ___ Teacher Guides ___ Workplace Activities ___

Workstation Materials and Props ___ Other Materials and Equipment ___

Design:

Concept Map ___ Site Located and Approved ___

Simulation Layout ___ Work with Construction Team Scheduled ___

Construction:

Construction Materials Obtained ___ Work Scheduled ___

Accommodation/Accessibility/Modification Issues ___

Pilot Testing:

Staff Development for Pilot Teachers:

Student Testing:

Observations/Comments:

NEW YORK STATE LEARNING STANDARDS CHECKLIST

Students will:

ENGLISH LANGUAGE ARTS (ELA)	
	1. read, write, listen, and speak for information and understanding.
	2. read, write, listen, and speak for literary response and expression.
	3. read, write, listen, and speak for critical analysis and evaluation.
	4. read, write, listen, and speak for social interaction.

THE ARTS (TA)	
	1. actively engage in the processes that constitute creation and performance in the arts (dance, music, theater, and visual arts) and participate in various roles in the arts.
	2. be knowledgeable about and make use of the materials and resources available for participation in the arts in various roles.
	3. respond critically to a variety of works in the arts, connecting the individual work to other works and to other aspects of human endeavor and thought.
	4. develop an understanding of the personal and cultural forces that shape artistic communication and how the arts in turn shape the diverse cultures of past and present society.

HEALTH, PHYSICAL EDUCATION, AND HOME ECONOMICS (HPEHE)	
	1. have the necessary knowledge and skills to establish and maintain physical fitness, participate in physical activity, and maintain personal health.
	2. acquire the knowledge and ability necessary to create and maintain a safe and healthy environment.
	3. understand and be able to manage their personal and community resources.

CAREER DEVELOPMENT AND OCCUPATIONAL STUDIES (CDOS)	
	1. be knowledgeable about the world of work, explore career options, and relate personal skills, aptitudes, and abilities to future career decisions.
	2. demonstrate how academic knowledge and skills are applied in the workplace and other settings.
	3a. demonstrate mastery of the foundation skills and competencies essential for success in the workplace
	3b. choose a career major and acquire career-specific technical knowledge/skills necessary to progress toward gainful employment, career advancement, and success in postsecondary program.

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Students will:

	LANGUAGES OTHER THAN ENGLISH (LOTE)
	1. be able to use a language other than English for communication.
	2. develop cross-cultural skills and understandings.

	MATHEMATICS, SCIENCE, AND TECHNOLOGY (MST)
	1. use mathematical analysis, scientific inquiry, and engineering design, as appropriate, to pose questions, seek answers, and develop solutions
	2. access, generate, process, and transfer information using appropriate technologies.
	3. understand mathematics and become mathematically confident by communicating and reasoning mathematically, by applying mathematics in real-world settings, and by solving problems through the integrated study of number systems, geometry, algebra, data analysis, probability, and trigonometry.
	4. understand and apply scientific concepts, principles, and theories pertaining to the physical setting and living environment and recognize the historical development of ideas in science.
	5. apply technological knowledge and skills to design, construct, use, and evaluate products and systems to satisfy human and environmental needs.
	6. understand the relationships and common themes that connect mathematics, science, and technology and apply the themes to these and other areas of learning.
	7. apply the knowledge and thinking skills of mathematics, science and technology to address real-life problems and make informed decisions.

	SOCIAL STUDIES (SS)
	1. use a variety of intellectual skills to demonstrate their understanding of major ideas, eras, themes, developments, and turning points in the history of the United States and New York.
	2. use a variety of intellectual skills to demonstrate their understanding of major ideas, eras, themes, developments, and turning points in world history and examine the broad sweep of history from a variety of perspectives.
	3. use a variety of intellectual skills to demonstrate their understanding of the geography of the interdependent world in which we live -- local, national, and global -- including the distribution of people, places, and environments over the Earth's surface.
	4. use a variety of intellectual skills to demonstrate their understanding of how the United States and other societies develop economic systems and associated institutions to allocate scarce resources, how major decisionmaking units function in the United Stated and other national economies, and how an economy solves the scarcity problem through market and nonmarket mechanisms.
	5. use a variety of intellectual skills to demonstrate their understanding of the necessity for establishing governments; the governmental system of the United States and other nations; the United States Constitution; the basic civic values of American constitutional democracy; and the roles, rights, and responsibilities of citizenship, including avenues of participation.

SCANS SKILLS AND COMPETENCIES CHECKLIST

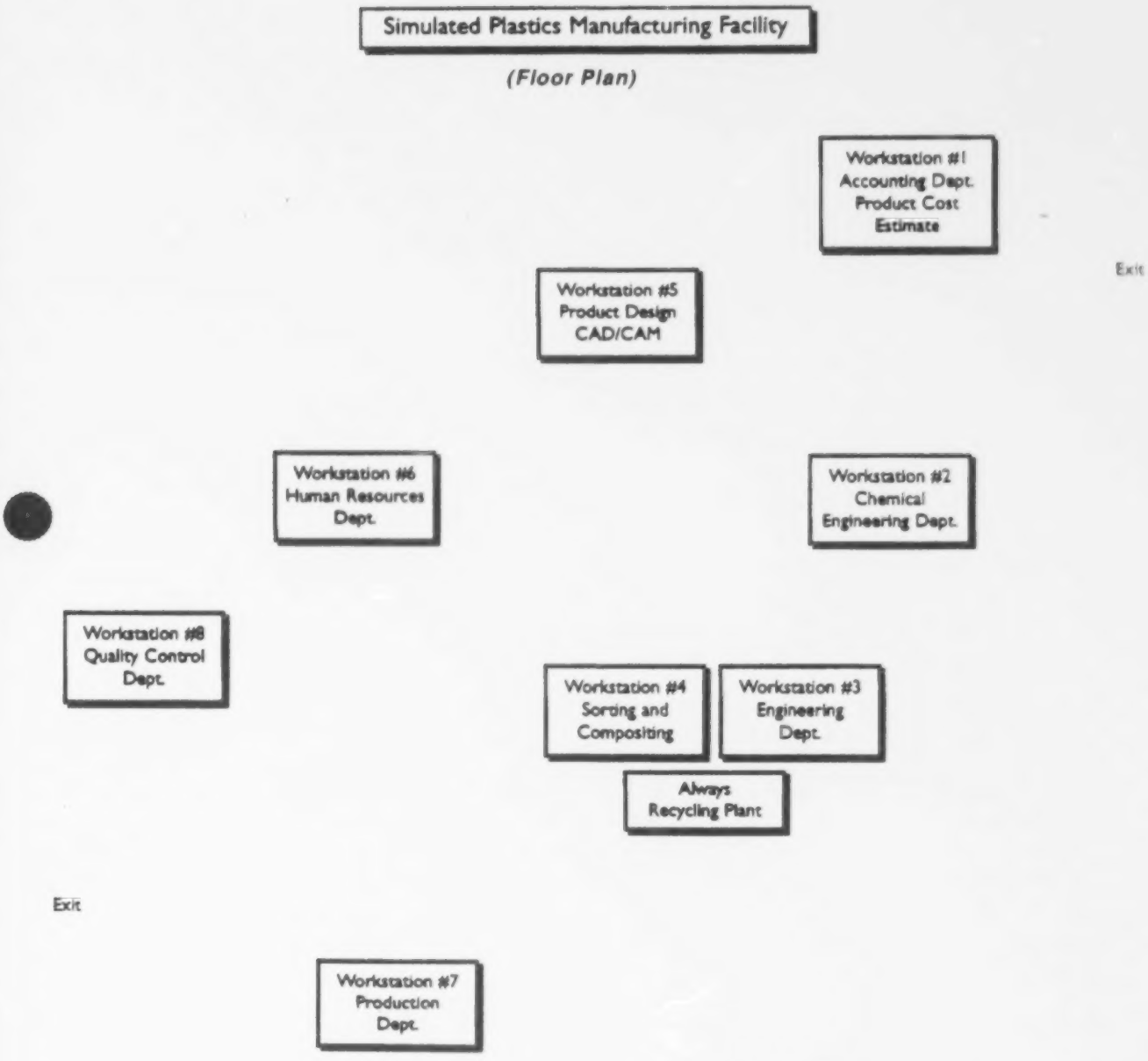
COMPETENCIES	
	Resource Management: Identifies, organizes, plans, and allocates resources.
	Interpersonal: Works with others.
	Information: Acquires and uses information.
	Systems: Understands complex inter-relationships.
	Technologies: Works with a variety of technologies.

FOUNDATION SKILLS	
	Reading: locates, understands, and interprets written information.
	Writing: communicates thoughts, ideas, information, and messages in writing.
	Mathematics: performs basic computations and approaches practical problems by choosing appropriate mathematical techniques.
	Listening: receives, attends to, interprets, and responds to verbal messages and other cues.
	Speaking: organizes ideas and communicates orally.

HIGHER ORDER THINKING SKILLS	
	Creative Thinking: generates new ideas.
	Decision Making: specifies goals and constraints, generates alternatives, considers risks, and evaluates and chooses best alternative.
	Problem Solving: recognizes problems and devises and implements plan of action.
	Seeing Things in the Mind's Eye: organizes, and processes symbols, pictures, graphs, objects, and other information.
	Knowing How to Learn: uses efficient learning techniques to acquire and apply new knowledge and skills.
	Reasoning: discovers a rule or principle underlying the relationship between two or more objects and applies it in solving a problem.

PERSONAL QUALITIES	
	Responsibility: exerts a high level of effort and perseveres towards goal attainment.
	Self-esteem: believes in own self-worth and maintains a positive view of self.
	Sociability: demonstrates understanding, friendliness, adaptability, empathy, and politeness in group settings.
	Self-management: assesses self accurately, sets personal goals, monitors progress, and exhibits self-control.
	Integrity & Honesty: chooses ethical courses of action.

Appendix C: Simulation Layouts



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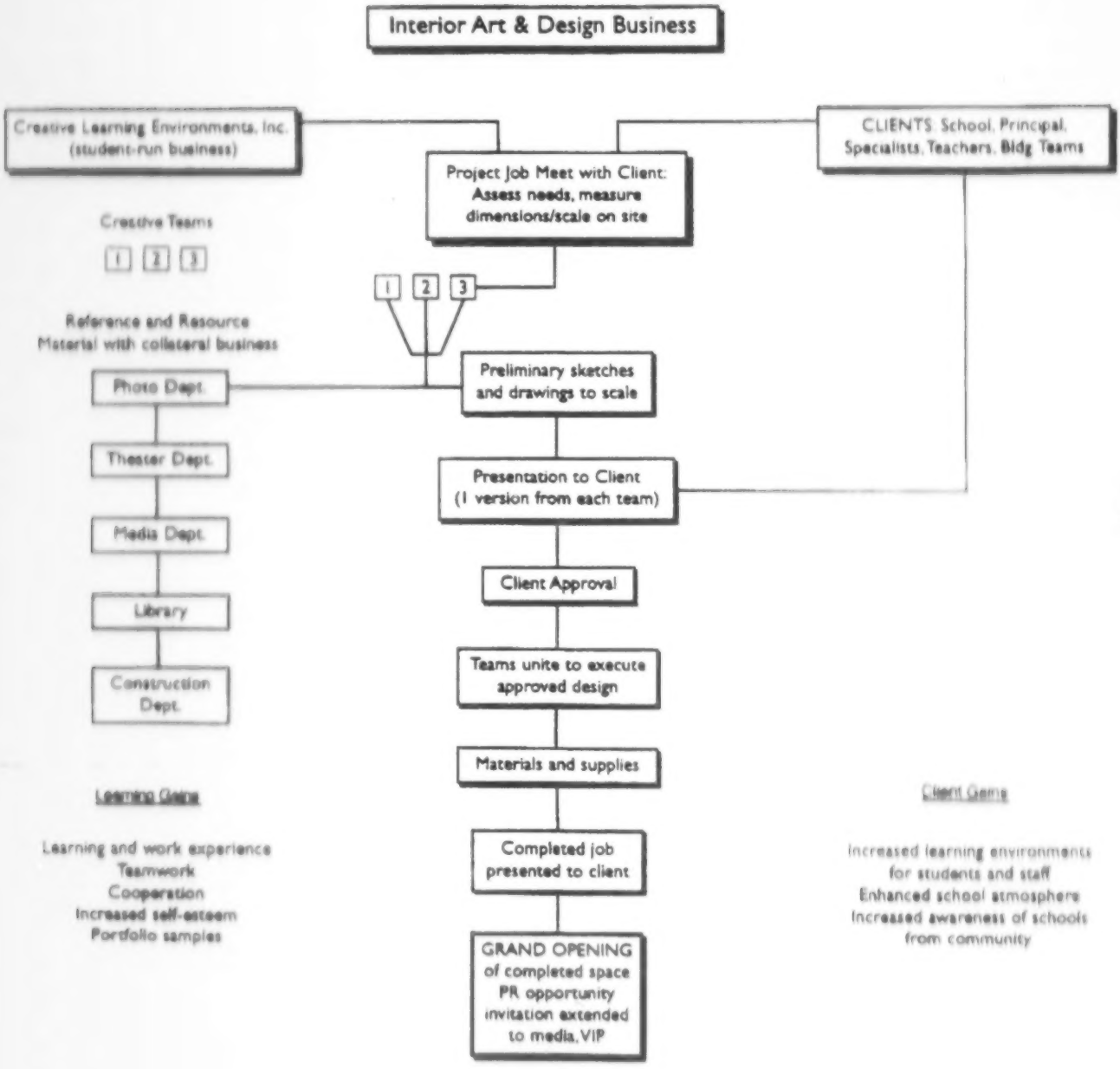
Interior Art & Design Business
Creative Learning Environments, Inc. (student-run business)
CLIENTS: School, Principal, Specialists, Teachers, Bldg Teams
Project Job Meet with Client: Assess needs, measure dimensions/scale on site
Creative Teams
1 2 3
1 2 3
Reference and Resource Material with collateral business
Photo Dept.
Theater Dept.
Media Dept.
Library
Construction Dept.
Preliminary sketches and drawings to scale
Presentation to Client (1 version from each team)
Client Approval
Teams unite to execute approved design
Materials and supplies
Completed job presented to client
GRAND OPENING of completed space PR opportunity invitation extended to media, VIP
Learning Gains
Learning and work experience
Teamwork
Cooperation
Increased self-esteem
Portfolio samples
Client Gains
Increased learning environments for students and staff
Enhanced school atmosphere
Increased awareness of schools from community
c 1996 Carriage House Art Studio

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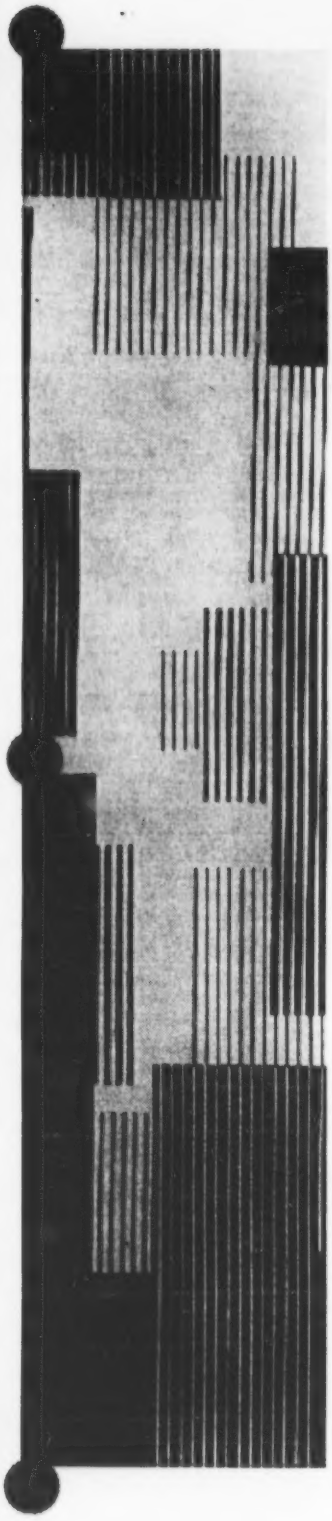

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